Feature

Visions of the Next 50 Years in Computing

The Association of Computing Machinery (ACM) hosted its annual convention, themed "The Next 50 Years of Computing", in San Jose, California, on March 1-5. Global leaders in industry, research, academia, and government were on hand to engage in discussions on the future direction and effects of computing_ the impact of information technology on education, medicine, communications, entertainment, quality of life, and social and economic freedom.

The ACM, reputedly the largest international professional computing society, provides a global forum for the exchange of knowledge about computing and information technology. The Association's goal is to advance the skills of information technology professionals and students throughout the world. Members of the ACM come from .

Conference activities

ACM97 kicked off on Saturday by opening the extensive exposition. Activities for ACM97's second day included a discussion of "Copyright and the Net: Is Legislation the Answer?", the annual awards dinner, and the 21st Intercollegiate Programming Contest, sponsored by Microsoft in collaboration with the ACM.

Students from fifty colleges and universities worldwide participated in the intercollegiate programming competition, which is a test of programming talent and race against time to solve real life programming challenges. To qualify for the contest finals, teams competed in regional contests from late October through early December. At the conference finals, the top teams from each region competed in a five hour battle to solve as many real life programming problems as possible. The teams that solved the most problems in the fewest attempts earned scholarships and software awards, as well as the appropriate titles: Overall champion, North American champion, European champion, or Asia/Pacific champion.

ACM97 was officially opened on Monday morning, with welcoming speeches by ACM President, Chuck House, and ACM97 Chair, Bob Metcalfe. James Burke, a science journalist on the Discovery channel and a columnist for *Scientific American*, was this year's conference emcee. The conference featured a series of plenary sessions from invited speakers—key technologists—who shared their views on the next 50 years of technology. Session presenters included William Perry, US Secretary of Defense, and noted journalists, educators, and researchers, such as Gordon Bell of Microsoft Corporation, Vint Cerf of MCI Communications corporation, Carver Mead of the California Institute of Technology, and Bran Ferren of the Walt Disney Company. James Burke presented the closing comments on Wednesday. To read abstracts of each session's topic access:

http://www.vxtreme.com/live/acm97/live.html

On Tuesday the teenage essay contest winners were announced. Dubbed the "joystick generation", high school students, grades 9-12 or equivalent, were given the opportunity to win college scholarships and trips to the conference by forecasting the future of the culture they are helping to create. The students were asked to imagine how computing technologies will change their lives over the next 50 years, then submit an essay to the "ACM97 Vision of the Future" contest. The essays were judged by committee on the basis of creativity.

"Our criterion for judging is not whether a student's essay ideas can actually be implemented. We are more interested in getting kids to realize that whatever choices they make with computer science, the choices will have future implications for society, economy, and across all spectrums of life," said Fred Abatemarco, editor in chief of *Popular Science* magazine. The magazine and ACM sponsored the contest.

"Today's high school students are the first people to grow up in a computer-focused

society. Their energy and vision is a crucial part of ACM97 since they are the ones who will help make critical decisions about technology and who will be most affected by information technology in the next millennium," said Bob Metcalfe, ACM97 chairman.

Exhibits and demonstrations

The exposition focused on technologies of the future plus a whimsical view of "back to the future". Visitors experienced technology in the year 2047 as well as the "paleotechnic" look back at technology, as it was at the end of the 20th century. A variety of exhibits were showcased, including a pavilion of well-known companies in the computer and software industry; the SIGGRAPH computer animation theater and computer generated art; the digital circus, a hands-on exhibit for children; the computer museum special photography collection; and several noncommercial exhibits from universities and government entities.

Ames Research Center provided visitors a look at the virtual windtunnel, an application of virtual reality interface technology to the visualization of the results of modern computational fluid dynamics simulations. The demonstrated 3D sketching for scene generation, scientific visualization, and imaging. "SKETCH" uses simple non-photorealistic rendering and a gestural interface based on simplified line drawings of primitives that allows all operations to be specified within the 3D world.

At the Digital Circus, kids could construct a city on the World Wide Web (WWW). East Carolina University demonstrated practical, real time telemedicine. I-Force from Immersion Corporation let visitor touch and feel computer simulations by using a "force-feedback joystick". An IBM researcher and the Sacramento King's coaching assistant jointly demonstrated "Advanced Scout", a performance-analysis data-mining package utilized by teams in the national Basketball Association (NBA). This technology uses algorithms to sort and analyze data, allowing NBA coaches to create game strategies with patterns in game data and video.

Silicon Graphics Inc. showcased applications of leading-edge computer graphics technology and its influence on everyday life and the future. The demonstrations included: a virtual reality theater; the debut of a virtual reality modelling language cartoon series that will soon air on the WWW; and the Shoah Visual History foundation Project, a database that holds thousand of interactive, personal testimonies from Holocaust survivors.

To learn about all of the exhibits in the expo access:

http://www.acm.org/acm97/expo/exhibitors.html

The forum

During the conference attendees had the opportunity to participate in an electronic survey, called the "forum", sharing their thoughts on the future of technology. You will soon be able to read what ACM97 attendees had to say on the following topics:

- How ubiquitous will computers become over the next 50 years?
- What can be done to make computers usable by a far greater number of people?
- What's going to happen with nano-technology and computers as sensory extensions?
- Utopian Visions: Your Vision of the Next Fifty Years of Technology Access for All?
- Creating an equal access on-line future 2084 or not?
- Security and privacy in future computing environments.
- Keeping things decent and open: Challenges of online discourse

To participate in "A National Survey of Public Attitudes Toward Computers" access <http://www.acm.org/acm97/forums/forums.html>. Add your thoughts on the future of technology to ACM's growing database and perhaps fashion the theme of next year's conference.